UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,966	01/15/2002	Yiqiang Li	2357P	1548

7590 06/12/2003

SAWYER LAW GROUP LLP
P.O. Box 51418
Palo Alto, CA 94303

EXAMINER
VALENCIA, DANIEL E

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 06/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/051,966	Applicant(s) LI ET AL.
	Examiner Daniel E Valencia DV	Art Unit 2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-11,13 and 14* is/are rejected.

7)☒ Claim(s) *5 and 12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Inventorship

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6 and 13 recite the limitation "the mirror" in line 4 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 6-11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nosaka Japanese Patent Application Publication JP 2001272612 A in view of Li U.S. Patent No. 6,477,289. Refer to the appropriate drawings or parts of the specification. Nosaka discloses an optical switch device (drawings 1-3) with a majority of the limitations of the claimed invention including a collimator (11-14) having a first receiving fiber and a second and third output fiber (fibers 15-18); a beam deflector (21) having a first portion and a second portion; and a reflector (22), the beam deflector residing between the reflector and the collimators; wherein the optical signal travels through the first portion of the beam deflector, is reflected by the reflector (22) and is output over the second fiber when the beam deflector is in a first position; and wherein the optical signal travels through the second portion of the beam deflector, is reflected by the reflector and is output over the third fiber when the beam deflector is in a second position (see abstract), as described in claims 1 and 8. Although Nosaka teaches the

general configuration of the switch, the reference fails to disclose a triple fiber collimator.

On the other hand, Li discloses an optical wedge switch that teaches the use of a triple fiber collimator and the advantages of using one in the type of switch disclosed by Nosaka. Regarding part of claims 1 and 8, Li discloses an optical switch including a triple fiber collimator with a first receiving fiber and a second and third output fiber (fig 6). Li teaches that it is advantageous to use triple fiber collimators because it allows three fibers to be collimated by a lens with all three of their axes equidistant from the optical axis of the lens (col. 8, lines 1-18). Both Nosaka and Li disclose optical switches utilizing the refraction properties of an optical wedge. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use a triple fiber collimator in the device disclosed by Nosaka.

Li further discloses that the first portion of the beam deflector includes a first side and a second side parallel to the first side, the optical signal traveling through the first side and the second side when the beam deflector is in the first position, and wherein the second portion of the beam deflector includes a third side and a fourth side, the third side is at a first angle from the fourth side, the optical signal traveling through the third side and the fourth side when the beam deflector is in the second position, optical signal having a beam separation angle between a beam incident upon the reflector and the beam reflected by the reflector (see figures 2b, 3, and 4), as explained in claims 3, 4, 10, and 11. Regarding claim 6 and 13, Li's disclosure shows that the crossing distance is greater than a thickness of the beam deflector divided by an index of refraction of the

beam deflector plus the distance between a back of a beam deflector and the reflector (fig. 8a, ref 156). Although the disclosure does not explicitly state this, figure 8a shows that the crossing distance is large relative to the spacing of the beam deflector; therefore this limitation would inherently be true of the Nosaka/Li combination. Li's disclosure shows that the collimator is a C lens (fig 8a, ref 154 and 156), as mentioned in claims 7 and 14.

With reference to claims 2 and 9, highly reflective coating is well known in the art and is commonly used on reflective surfaces for optical reflection. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use highly reflective coating on the reflector of the device disclosed by Nosaka and Li.

Allowable Subject Matter

Claims 5 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: As to dependent claims 5 and 12, the prior art alone or in combination fails to disclose or render obvious the optical switch of claim 4, wherein the beam deflector has an index of refraction (n) and a separation angle and the first angle obey the claimed relationship. For example, Nosaka and Li both disclose deflectors with their appropriate

indices of refraction; however, both the references make no mention of the relationship of the angles.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ford Japanese Patent JP 10039142 A discloses an optical fiber switching device that uses a wedge as a deflector and a reflector for switching optical signals.

Cai U.S. Patent No. 6,219,474 discloses a configurable optical add/drop device that uses a triple fiber collimator and a prism and a reflector for redirecting light.

Wu U.S. Patent No. 6,463,189 discloses an apparatus for optical switching that uses a triple fiber collimator and a prism and a reflector for redirecting light.

Liu U.S. Patent No. 6,493,139 discloses an optical switch with moving prisms and a reflector.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel E Valencia whose telephone number is (703)-305-4399. The examiner can normally be reached on Monday-Friday 9:30-6:00.

The fax phone numbers for the organization where this application or proceeding is assigned are (703)-308-7724 for regular communications and (703)-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

DEV
June 8, 2003

John D. Lee
Primary Examiner